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Familiarity and Foreign Language Listening Comprehension

— The Impact of English Accent Varieties —

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1. Introduction

Learned internationally as a Lingua Franca, English has become a heterogenous language with various standards and grammars. Therefore, the criteria for true proficiency in English have changed as the number of English speakers and varieties of English have increased. While English learners do not need the capacity to produce world Englishes, they do need the capacity to comprehend many varieties (Canagarajah, 2006). English education worldwide has promoted communicative competence in the globalized world: For example, one of the measures of the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT, 2014) to improve English education in Japan is to change the English curriculum to focus on the four skills (listening, speaking, reading, and writing). However, in spite of these changes, most Japanese people have few opportunities to be exposed to different varieties of English: English teachers in Japan are mostly Japanese, and approximately 57 % of Assistant Language Teachers (ALT) were from the United States in 2019, and more than 89 % of ALTs were from dominant English-speaking countries while the variety of participating countries has gradually increased（Council of Local Authorities for International Relations, CLAIR, 2019; Sugimoto & Yamamoto, 2019); moreover, according to a review of government-approved textbooks, the North American accent accounted for the great majority of accents presented in the audio materials for public junior high schools in Japan (Sugimoto & Uchida, 2016). As a result of this lack of exposure to different kinds of English, even English learners with high proficiency face difficulty comprehending the English spoken by people with unfamiliar accents. Various studies have investigated how accent affects listening comprehension; however,

there is little research that isolates accents as the variable of interests. Because listening involves various factors, it can be difficult to isolate the impact of accent. Therefore, using audio material that has been carefully controlled in terms of speech speed, this research investigated how accents affect listening comprehension for intermediate learners. In addition, perceptions of English with various accents and what the ideal accent in English is are discussed in the current study.

2. Previous Research

2. 1 Listening Comprehension

Listening skills are vital in oral communication but are probably the most difficult to teach effectively among the four main communication skills: listening, speaking, reading, and writing (Vandergrift, 2004). Due to aural information's transient intangible characteristics, it is hard to investigate and train listening skills in the same way as other language skills (Field, 2008). In the first place, listening processes cannot exist without spoken discourse, and spoken discourse is very different from written discourse in terms of timeliness: The listener is required to process the spoken information on stream with frequently just one chance to understand (Buck, 1988, 2001; Richards, 2008).

In the cognitive process from perception to comprehension, two different approaches are involved: bottom-up processing and top-down processing (Buck, 1988; Gilakjani & Ahmadi, 2011; Richards, 2008; Scrivener, 2005). Bottom-up processing is a step by step process beginning from details such as acoustic input. The sound information is interpreted into phonemes and then recognized as a word. Through this process, a listener builds up clauses, sentences, and the whole context from identified words (Richards, 2008); however, considering the speed of spoken English, it is difficult to process the inputs using only the bottom-up approach. Therefore, Scrivener (2005) and Gilakjani and Ahmadi (2011) suggested that a listener comprehends spoken language processing both bottom-up and top-down. Top-down processing means understanding the larger context or concept and leads the listener to guess what word will come after some comprehensible words are recognized; as a result, the listener does not necessarily perceive every piece of acoustic information but listens to confirm their hypothesis or expectation. Moreover, some research showed that people tend to hear what they expect to hear, even if the speech stream does not fit their expectation (Buck, 1988). For example, people could easily misunderstand spoken discourse when having been given misleading information; therefore, an overreliance on the top-down approach can also negatively

affect listening comprehension.

2. 2 Difficulties with Listening Comprehension

Listening comprehension is a result of processes involving not only perceptional factors (such as bottom-up processing and top-down processing), but also external factors (Gilakjani & Ahmadi, 2011; Gilakjani & Sabouri, 2016). According to Bloomfield, Wayland, Rhoades, Blodgett, Linck, and Ross (2010), the factors and characteristics affecting listening comprehension were categorized into three main elements: Listener (e.g., working memory capacity; proficiency and experience through vocabulary size; phonological and grammatical information; background knowledge about the topic, text, structure, schema, and culture; and anxiety), passage (e.g., length, redundancy, syntactic complexity, speaker's accents, distortion and noise, hesitation and pause, and speech rate), and testing conditions (e.g., time limits, number of and control over hearings, and note taking). In addition, Rubin (1994) stated that the purpose of listening also affects listening comprehension. In the following section, I discuss memory, background knowledge (vocabulary, scheme, and topic), speech speed, paralanguage, and accents.

2. 2. 1 Memory

It is impossible to acquire language without memory, and this factor impacts listening comprehension through the ability to store information long enough for it to be processed. According to Foster (2009), people have different kinds of memories: short-term memory (STM) and long-term memory (LTM). The fundamental differences between STM and LTM is how long and how much information can be kept. While STM remains only for a few seconds to minutes and has limited capacity, LTM lasts for a few hours to a few years, or even until people die and has almost infinite capacity. The more vocabulary knowledge that is stored in LTM, the greater the capacity to comprehend the target word immediately. In addition, working memory, which refers to a cognitive system that executes the processing, storage, and retrieval of information in memory (Baddeley & Hitch, 1974), is also necessary. Baddeley and Hitch explained that working memory is required more for using a second language (L2) or foreign language (FL) than for using one's first language because foreign language cognition requires more complicated processes through, for example, translating between one's first language and the target language.

2. 2. 2 Vocabulary

Vocabulary is an indispensable factor for listening comprehension; however, the amount of vocabulary is so vast that it is time-consuming for language learners to memorize all the vocabulary they need. It has been suggested that more than 98% of the vocabulary coverage in English is needed for learners to comprehend the content correctly without additional assistance: This means that one unknown word in 50 words could have almost no impact on understanding the contents (Carver, 1994; Hu & Nation, 2000; Nation, 2006; Stæhr, 2009). According to Nation (2006), people would need an 8000 to 9000 word-family vocabulary to comprehend a written text and a 6000 to 7000 word-family for spoken text, assuming that 98% of coverage is necessary for adequate comprehension; however, these estimates depend on the person, and factors such as job or environment could lead to higher requirements or even lower requirements. In many cases, it is not always easy to comprehend contents sufficiently with 98% of vocabulary knowledge, especially for non-native English speakers. This is probably because not all the gaps in comprehension can be filled by guesses from context and not all problems in comprehension are a result of a lack of lexical knowledge: Comprehension may be affected by transformed meanings due to pragmatic factors such as contexts, idioms, or emotion. Moreover, considerable lexical knowledge is equally required for all learners regardless of their listening proficiency (Bonk, 2012). Taking all of these factors into account, it can be concluded that if a listener is not familiar with a word, it will often prevent them from understanding what they hear.

2. 2. 3 Topic Familiarity

Listening comprehension can be increased if the listener has sufficient background knowledge. Some research has shown that background knowledge significantly facilitates listening comprehension because the knowledge helps people guess what the speakers are talking about through a top-down process (Othman & Vanathas, 2017). This means that the more familiar a listener is with a target topic, the better conjecture works. Conversely, if people cannot imagine the situation the speaker is talking about, it will be very difficult to comprehend correctly. In addition, listeners tend to pay more attention to topics that are interesting, necessary, and related to them (Othman & Vanathas, 2017). Therefore, the purpose of listening could also affect listening comprehension.

2. 2. 4 Speech Speed and Pause

It is important for speakers to adjust speech speed to be comprehended properly. However, the standard of speech speed—fast or slow—is not a constant measure for each person because it is a subjective perception; moreover, words per minute (WPM), which tends to be used to indicate the speed of reading or spoken discourse, could include a variety of speeds depending on the length of vocabulary and pauses. According to Zhao (1997), perception of speech speed is different depending on the listeners' ability, storage capacity, listening habits, and processing strategy. Some researchers investigated the impact of speed on listening comprehension by categorizing speed as slow, regular, and fast: They found that fast speed could negatively affect listening comprehension but that there was no significant difference between slow and regular speed (Anderson & Koehler, 1988; Blau, 1990). According to Uchida, Kikuchi, Nakaune, Maekawa, and Ishizuka (2002), when the phonation time was changed to 80% (faster) and to 140% (slower) based on the original speed, the slow speech (140%) was comprehended 7% more than the fast speech (80%). Moreover, Blau (1990) showed that longer pauses significantly facilitate listening comprehension. Therefore, speech speed and pauses are also important factors when conditioning listening comprehension questions.

2. 2. 5 Paralanguage

Listening comprehension is affected not only by language itself, but also paralanguage (Pennycook, 1985). Paralanguage is defined as "any aspect of vocal behavior which can be seen as meaningful but is not described as part of the language" (Matthews, 2005, p.264). According to Kasuya and Yang (1995), paralanguage consists of voice qualities (e.g., modal voice, falsetto, whisper, and harsh voice) and vocalization such as vocal characterization (e.g., laughing and crying). Morton and Watson (2009) compared the effect of normal voice and dysphonic voice on listening tasks, requiring participants to recall words and predict a conclusion. They found that children performed better on the normal voice task. This finding suggests that information about emotion in voice might affect listening comprehension.

2. 2. 6 Accents

Accents make language colorful and complicated for listening comprehension. According to the Cambridge dictionary, accent is defined as "the way in which people in a particular area, country, or social group pronounce words;" in other words, it is natural to have a non-native accent when speaking a foreign language because the way people speak is often affected

by their first language especially for lower proficiency learners. In addition, accent is one of the major problems that affects listening comprehension; research has indicated that 66% of the listeners considered accent to be one of the most influential factors for listening comprehension (Gilakjani & Sabouri, 2016).

2. 3 Familiarity and Accents

It is important to have opportunities to be exposed repeatedly to a target accent in order to enhance listening comprehension. This is because it has been suggested that when people become more familiar with a target accent, their listening comprehension of the spoken discourse with that target accent is improved even with short-term exposure (Witteman, Weber, & McQueen, 2013); in addition, the degree of familiarity with the target accent affects the listening comprehension differently. For example, comparing the degree of familiarity with the German-accented Dutch, Witteman *et al.* (2013) indicated that the native Dutch-speaking participants with slight experience with German-accented Dutch adapted to the medium and weakly accented words rapidly. On the other hand, the Dutch people who had been exposed to German-accented Dutch constantly could understand the spoken contexts even with strong accents. Therefore, familiarity with accents is an important factor for listening comprehension.

2. 4 Perception and Accents

Perception and actual comprehension related to accents sometimes do not correlate highly. According to Derwing and Munro (1997), when 26 native English-speaking listeners rated Cantonese, Japanese, Polish, and Spanish speakers' English accent strength and perceived comprehension, the accent strength was rated more severely than perceived comprehensibility even if the actual comprehension was not affected seriously; in addition, it was suggested that recognition of the speakers' first languages was slightly related to higher listening comprehension. On the other hand, Munro and Derwing (2001) showed that speech rate possibly affects listeners' perceived comprehensibility and perception of the accents of the speakers. For example, when the speech rate was three to four syllables per second, the accent was rated weaker; however, when the speech rate was slower than three syllables per second or about five syllables per second, the accent was scored as stronger; similarly, perceived comprehensibility score was also related to the speaking rate (faster than three syllables per second and slower than five syllables per second were scored higher for comprehensibility). Therefore,

these results may indicate that people tend to be more sensitive to accents than the actual impact of accents on listening comprehension; in other words, unfamiliar accents require longer processing time by getting attention through processing.

2. 5 Listening Comprehension and Various Accents

Many researchers have investigated the effects of accent on listening comprehension (Butler, 2007; Harding, 2012; Major, Fitzmaurice, Bunta, & Balasubaramanian, 2002; Matsuura, 2017; Munro, Derwing, & Morton, 2006; Ockey & French, 2014). Familiarity with accent is considered one of the factors that facilitate listening comprehension; however, results do not consistently show the positive effects of familiarity with the target accent (Major, et al., 2002; Munro, et al., 2006). Munro, et al. (2006) compared how English spoken by 48 native speakers of Cantonese, Japanese, Polish, and Spanish was comprehended by 40 listeners whose native language was Cantonese, Japanese, Mandarin, and English. The result showed that Japanese people and Cantonese people perceived their L1 accent was the easiest among the four accents even though their actual comprehension was not significantly different. In addition, Winke and Gass (2013) found that when people assess pronunciation, their L1 and familiarity with the target accents could affect the rating of speakers' comprehensibility because the more familiar the accents are, the more smoothly listeners understand the content. For example, Chinese people evaluated English spoken by Chinese as easier to understand than English spoken by Spanish and Korean people (Winke & Gass, 2013).

Similarly, Major et al. (2002) examined how the accents of English speakers from China, Japan, Spain, and America affected the listening comprehension of listeners from the same countries. The results showed that the American accent was scored significantly higher than non-native English speakers' accents. While Spanish people got the highest score for the English spoken by Spanish people, Chinese people comprehended less of the English spoken by Chinese. On the other hand, another study indicated that Mandarin Chinese listeners comprehended the English spoken by Mandarin Chinese speakers far better than the English spoken by Australian and Japanese speakers (Harding, 2012).

In addition, according to Munro (1998), for native listeners, background noise negatively affects listening comprehension more for L2 accented English than native speakers' English. Therefore, it can be said that listening to unfamiliar accents requires more concentration and longer processing times than listening to familiar accents in some cases.

2. 6 Gaps in the Literature

Previous research has shown that accent affects listening comprehension; however, the effects of familiarity with the target accent produced different results; moreover, little research has set accent as the only variable. Therefore, in this study, careful attention was given to control comprehension-question difficulty and speech stream characteristics in terms of passage difficulty, speech speed, and pause length. Especially, speech speed and pause length were carefully controlled; that is, if each audio clip was played at the same time, the audio sounded like a chorus reading. Moreover, questions remain regarding how people react to English with unfamiliar accents in practice; therefore, the current study investigated this aspect through interviews.

2. 7 Research Questions

Q1. Does familiarity with the accents of English speakers facilitate listening comprehension for Japanese EFL learners?

Q2. How do Japanese EFL learners perceive English with various accents?

Q3. How do people react to English with incomprehensible accents in authentic settings?

3. Methods

This study consisted of two phases: Phase 1 explored how accents affect listening comprehension for Japanese intermediate English learners; in Phase 2, high proficiency English speakers' perceptions of accents were investigated through online interviews.

3. 1 Effects of Accent on Listening Comprehension

3. 1. 1 Participants

The participants in Phase 1 were 20 freshmen of a private women's university in Tokyo, Japan; aged between 18 and 20 years old (one participant did not answer the age question). In this study, students majoring in English and belonging to the International English department were chosen (there are 12 departments in the university) because International English students are required to study abroad for at least half a year to meet the requirements of their bachelor's degree. Therefore, the participants had an interest in English and desire to acquire English skills in their university lives. Their English levels are pre-intermediate to intermediate (most of the participants passed the Eiken Test in Practical English Proficiency Grade Pre-2 or 2 level). Pre-intermediate to intermediate level learners were chosen because the

students probably had had little exposure to various accents (100% of participants had been exposed to U.S. accents and U.K. accents, followed by 65% for Australian accent and 10 % for Indian accent), and the effects of different accents could be shown more significantly than in the case of high proficiency learners, who tend to have more experience with diverse accents and could answer perfectly on the listening comprehension test regardless of accents.

3. 1. 2 Instruments

Audio material was made by the author because it was difficult to find controlled material with a variety of content and accents, and available material occasionally did not reveal the speakers' first language. The test was made based on TOEIC official training book for listening (Educational Testing Service, 2017) because the main focus of the test is English for International Communication. In the TOEIC training book, four passages were chosen from Part 4, which is spoken by one speaker per passage. The chosen passages were about advertisements and public announcements (Passage 1: opening address for a festival; Passage 2: final speech for interns; Passage 3: advertisement for an expo; Passage 4: airport announcement). Contents about academic or business conversations such as meetings were avoided. This decision was made as it was thought such content might include vocabulary that would be difficult for the freshman students to understand. Excessive vocabulary difficulties would have been a confounding variable in this study, detracting from the variance accountable to accent.

The four passages were changed to audio using Google Cloud Text-to-Speech (2019), and the four voice settings were chosen from standard English of the United States, Great Britain, India, and Australia. All of the four audio materials were controlled to be as similar as possible except for accent. The settings were as follows: Audio device profile: Default; voice type: WaveNet, which synthesizes natural intonation; and Voice gender: male voice, avoiding possibly being affected by gender difference. Next, the audio was encoded into MP3 files, and the speed and pauses were edited to be similar for each voice setting. Finally, instructive audio (with another United States voice setting of Google Cloud Text-to-Speech) was added using an audio editing program called Audacity (version 2.3.2, 2019). The present study used synthesized voices from Google Cloud Text-to-Speech, so the paralanguage factor of each speaker in the same passage could be possibly limited. The details for each audio clip, including length, number of words, words per minute, and pause length, are presented in Table 1.

Table 1. The time and WPM for each passage

Passage	Time (sec.)	Words	WPM	Pause (sec.)
Passage 1	25.4	82	193	2.2
Passage 2	26.4	93	211	2.9
Passage 3	24.2	75	185	4.4
Passage 4	26.6	84	189	3.1

Note. Sec.= seconds

Comprehension questions were made for each passage including three multiple-choice questions and one dictation question from the TOEIC training book. These two types of questions were chosen because both were easy to make and mark, and dictation questions are considered as a reliable measure of language processing skills because of the necessity of memorization and reproduction (Buck, 1988). In addition, five Likert scale questions regarding perceptions of the various audio settings (understandability, speech speed, voice clarity, accent strength, and intonation) and one question about their guess of what the accents of the speakers were (see Appendix A) were created, the answers to which would be compared to previous research (Major, *et al*., 2002; Munro, *et al*., 2006). Finally, participants answered questionnaires about their thoughts on accents (see Appendix B).

The instruments were piloted with two Japanese freshmen from another university with intermediate English proficiency (who similarly passed the Eiken Grade 2). These participants provided feedback on the difficulty of the listening audio. This check was needed to ensure that the audio and question levels were of appropriate difficulty in order to avoid ceiling or floor effects.

3. 1. 3 Procedure

The 20 participants were divided into four groups of five participants (Group A, B, C, and D) and gathered by group in a room at the university. Each group sat in front of a long desk, upon which had been set printed comprehension questions and questionnaires, and told in Japanese that this research did not affect their grade and that their answers would be used only for this study. In addition, the participants were told the basic flow of the experiment; at first, participants would listen to Passage 1 and answer three comprehension questions from the TOEIC official textbook and take one dictation for a sentence from each of the passages while listening to the sentence from the passage again. After the listening comprehension and dictation questions, the participants would answer about their perceptions of the speakers in

terms of understandability, speech speed, voice clearness, accent strength, and intonation. In addition, the participants would be asked to guess the speakers' accents. Before starting the listening test, participants listened to an audio example played through Bluetooth speaker connected to a laptop and were asked whether the volume was appropriate. The volume was adjusted for each group. After listening to four passages with different accents, the participants answered questionnaires about their language learning and ideas about English with accents using a five-item Likert scale. The accent order was differentiated depending on the group. Table 2 shows the passage and accent settings for each group.

Table 2. Passages and accent settings for each group

Passage No.	Group A	Group B	Group C	Group D
Passage 1	US	UK	India	Australia
Passage 2	UK	India	Australia	US
Passage 3	India	Australia	US	UK
Passage 4	Australia	US	UK	India

3.1.4 Analysis

First, the answers were marked and scored; each correct multiple choice answer earned one point, and dictation questions were scored by word: one point for a pronoun, a preposition, and a copular verb; two points for a noun, verb, adjective, and adverb. When a word was assumed to be understood but the answer contained a spelling mistake, the word was given full points. The scores were then summed for each participant and for each of the four passages. Next, based on these scores, the passage difficulty was compared using a one-way ANOVA in SPSS. It showed that the four passages did not have significant difference in terms of difficulty; therefore, whether accent affected the listening comprehension scores was calculated. As Japanese people have learned English using standard American accented audio materials, the most familiar accents were predicted to be the U.S. accent for most students. Their perceptions about each speaker were also compared. Because the speed was controlled, any difference in speed perception could suggest difficulty with an accent. Finally, the answers about accents were compared with the answers from participants in Phase 2, and then, analyzed.

3. 2 Interview for English speakers with High Proficiency

3. 2. 1 Participants

For Phase 2, three Japanese people with high English proficiency, who had studied and worked with foreign people using English, graduated from colleges in the United States, or gotten a Master's degree in the United Kingdom, and eight English speakers learning Japanese from the United Kingdom, Australia, Canada, India, and the Netherlands (aged between 19 to 33) participated. Phase 2 explored how high proficiency in English impacted people's impression of English of various accents and helped to overcome comprehension problems with unfamiliar accents. The information about participants is shown in Table 3 (I selected the pseudonyms).

Table 3. Information about participants in Part 2

Pseudonym	Nationality	Age
Rina	Japan	23
Nanami	Japan	23
Taro	Japan	26
Edward	UK	24
Christopher	Australia	33
Darsha	India	19
Anik	India	22
Harisha	India	27
Scott	Canada	27
Alex	Canada	27
Kevin	Netherlands	23

Note. ($N = 11$)

3. 2. 2 Instruments

Four questions were prepared about (1) measures for incomprehensible accents, (2) tips to adapt to speakers with unfamiliar accents, (3) ideas about accents, (4) and ideal accent for English as an international language.

3. 2. 3 Procedure

The participants with high English proficiency were interviewed online. All participants

were volunteers. Firstly, the participants were told in English that their answers would be used only for this research and that the personal information was protected. Then, the participants answered the four questions with no time limitation. After that, the participants responded to follow-up questions about their answers. Finally, the responses about ideal accents were compared with the answers from participants in Phase 1, and their perceptions about variety of accents in English were categorized and then analyzed.

4. Results

4. 1 Listening Comprehension Questions

Tests for normality were conducted, which resulted in the removal of an outlier out of 20 from Passage 1, 2, and 4. After removal scores had a normal distribution.

4. 1. 1 Passage Difficulty

Participants in Phase 1 completed all listening questions. To compare the effects of accent on listening comprehension, the passage difficulty was compared first in SPSS. The mean score of each passage is shown in Table 4. In addition, 95% Confidence Interval for the mean, the standard deviation, the minimum and maximum scores, and skewness and kurtosis measures with standard error were included.

Table 4. Descriptive statistics for each passage difficulty

	M	95% CI	SD	MIN	MAX	Skew (SE)	Kurt (SE)
Passage 1	3.74	(3.29, 4.19)	0.93	2	5	-.326 (.524)	-.517 (.252)
Passage 2	3.74	(3.21, 4.27)	1.10	2	6	.022 (.524)	-.237 (.341)
Passage 3	4.30	(3.59, 5.01)	1.53	1	7	-.170 (.512)	.123 (.992)
Passage 4	4.00	(3.61, 4.39)	0.82	2	5	-.684 (.524)	.614 (1.014)

Note. CI = Confidence Interval for mean, *SD* = Standard Deviation

According to an ANOVA, there are no significant differences in terms of passage difficulties showing p-value as 0.355 (significance set at $p < .05$; Table 5).

Table 5. Difference of passage difficulty

	Sum of Squares	df	Mean Square	*f*	*p*
Between Groups (Combined)	4.224	3	1.408	1.098	.355

Note. (significance set at $p < .05$)

Planned comparisons for each passage are shown in Table 6. The *p*-values indicate there are no significant differences in terms of passage difficulty; moreover, because all confidence intervals pass through zero, the actual difference could be zero. Even bootstrapped data, which is used for small samples and simulates larger samples, indicated that the differences in difficulty could be zero. Therefore, it can be said that the difficulty of the passages is similar, and this finding increases the validity of the comparison of accents.

Table 6. Difference of each passage difficulty

P (I)	P (J)	*MD* (I-J)	99% CI	*SE*	*p*
Passage 1	Passage 2	.000	(-0.73, 0.73)	.367	1.000
	Passage 3	-.563	(-1.29, 0.16)	.363	.125
	Passage 4	-.263	(-1.00, 0.47)	.367	.476

Note. (significance set at $p < .05$), P = passage, *MD* = mean difference, CI = confidence interval, *SE* = Standard Error

4. 1. 2 Accent Difficulty

An ANOVA was performed to ascertain if accents in this study significantly affected listening comprehension scores. Results suggested that accent did impact listening comprehension (significance set at $p < .05$; Table 7).

Table 7. Effects of accents on listening comprehension score

	Sum of Squares	df	Mean Square	*f*	*p*
Between Groups (combined)	11.476	3	0.825	3.235	0.027*

Note. (significance set at $p < .05$) *

In planned comparisons, a significance value of $p = .01$ was sought as the sample size was small and so in order to achieve a power of at least 0.8, $p = .01$ was needed. Comparing the differences between four accents, only the difference between the Indian accent and the Australian accent was significant (see Table 8). Though the p-value did not meet our significance criteria, the Indian accent was the most difficult for listening comprehension indicated by the p-values of nearly 0.05 or smaller (0.28 for the U.S., and 0.53 for the U.K. accent); moreover, 99% confidence intervals pass through zero in terms of the difference between the U.S. accent and the U.K. accent, the difference between the Indian accent and the U.S. accent, and between the Indian accent and the U.K. accent, which means that the difficulty of the U.S. accent, the U.K. accent, and the Indian accent could be the same. Nevertheless, as we will see, the Indian accent resulted in the lowest scores for listening comprehension for the participants.

Table 8. Difference of each accent difficulty

Accent (I)	Accent (J)	*MD* (I-J)	99% CI	*SE*	*p*
India	US	-.789	(-1.72, 0.14)	.353	0.028
	UK	-.684	(-1.61, 0.24)	.348	0.053
	Australia	-1.053	(-1.99, -0.12)	.353	0.004*

Note. (significance set at $p < .01$) *, *MD* = Mean Difference, *SE* = Standard Error

According to Plonsky and Oswald (2015), the size of effects in SLA research can be categorized into three: small is between 0.25 and 0.4; medium is between 0.4 and 0.6, and large is over 0.6. The difference between the U.K. accent and the Indian accent was shown as $r = 0.22$, the Australian accent and the Indian accent as $r = 0.33$ (small), and the U.S. accent and the Indian accent as $r = 0.25$ (small). Therefore, it can be said that the data shows accent could affect listening comprehension in some cases; however, the effect was small.

Next, the mean correct rates for each accent on the multiple-choice questions and dictation questions are shown in Table 9. The maximum score for each question is different (three points for multiple-choice questions, and four points for dictation questions), and the score has been changed into percentage. The correct rate for the Indian accent was the lowest for both multiple-choice questions and dictation questions; moreover, in terms of the difference between the accents, multiple choice questions indicated larger differences than dictation questions; it may be that familiar accents allowed longer time to understand the concepts. However, the maximum score and the way to count scores are different; therefore, the differ-

ence cannot be compared simply.

Table 9. Correct answer rate of multiple-choice questions and dictation questions

	US	UK	India	Australia
Multiple choice Qs	77%	72%	54%	74%
Dictation Qs	45%	50%	42%	54%

4. 1. 3 Perception of Each Speaker's Accent

The results from the questions about speakers are shown without comparing participants' responses to their scores. The percentage of the participants from Phase 1 who correctly identified the speakers' accent is as follows: The highest rate was 55% seen in the U.S. accent, followed by the U.K. accent (40%) and the Indian accent (40%), while the Australia accent was the lowest at 15%.

Next, the participants answered about their perceptions of each speaker in terms of understandability, speech speed, voice clarity, accent strength, and intonation. A lower score indicates more difficult listening comprehension (see Table 10). In terms of understandability, 5 means very easy to understand. Very slow speech speed was rated as 5, and very clear voice was shown as 5. In terms of accent strength, 1 represents strong accent, and spoken discourse in monotone is indicated by 1. The results showed that the Indian accent was marginally perceived as the most difficult (lowest scores) on all aspects.

Table 10. Students' mean perception rating of the speakers

	US	UK	India	Australia
Understandability	2.65	2.40	2.25	2.65
Speech Speed	2.40	2.40	2.20	2.60
Voice Clarity	2.95	2.80	2.55	3.25
Accents	3.00	2.95	2.35	3.05
Intonation	3.00	3.00	2.45	3.00

Note. ($N = 20$)

4. 2 Listening Comprehension Capacity

4. 2. 1 How to Expand Capacity

All participants from Phase 1 answered that accents could affect listening comprehension and that it is important to be exposed to a target accent repeatedly if they would like to improve listening comprehension with the target accent.

Figure 1 shows how often they had opportunities to listen to English with various accents. The majority of the participants had more exposure to a variety of English as they grew up.

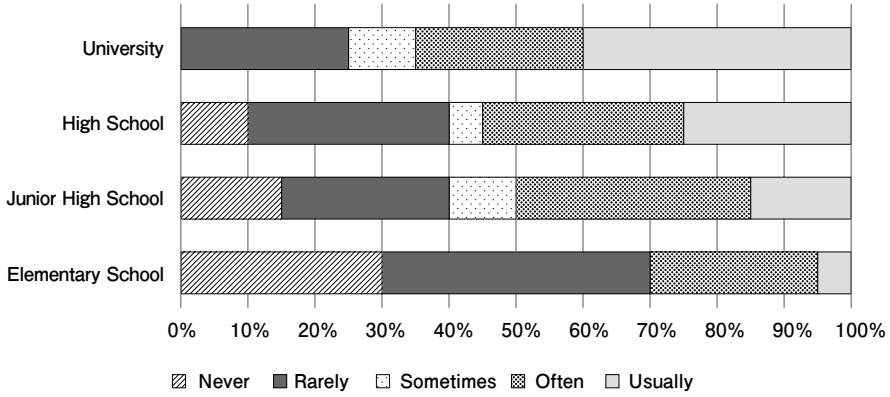

Figure 1. How often did you have opportunities to listen to English with various accents

Figure 2 shows the opinions of participants in Phase 1 about when English education in Japan should introduce English with a variety of accents. Results suggest that 50% of the students thought it would be good to introduce varieties of English earlier, while 90% of the

participants answered positively to using English materials containing various accents in university.

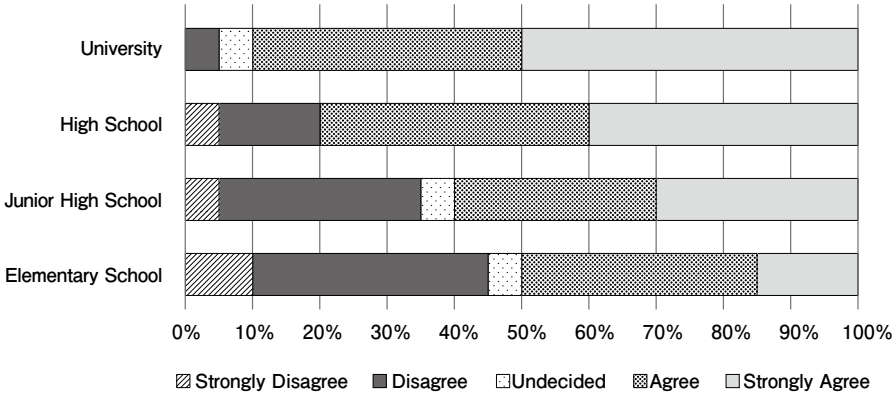

Figure 2. Opinions about when English materials with various accents should be included in English Education.

Generally, it is thought that earlier exposure to various accents would expand capacity to distinguish phonological differences; however, considering the difficulty of listening comprehension, still 50% of the participants considered it difficult to introduce English varieties to elementary school students.

All participants in Phase 2 answered that when they experienced difficulty with listening comprehension caused by accents, it was important to ask speakers what they said because the earlier they can connect perception and meaning, the faster they can expand listening capacity. Christopher from Australia responded, for example, "usually, I indicate I don't understand, and we negotiate the meaning, personally, I note what sound isn't distinguishable" (November 15, 2019); on the other hand, when they want to avoid making the speaker feel bad, they try to express that they do not understand by facial expressions (Anik, November 16, 2019), or kindly ask the speaker to paraphrase (Scott, November 15, 2019; Harisha, November 15, 2019). In any case, background knowledge is very important to guess what the speaker would like to say; moreover, it is also important to improve listening comprehension by increasing opportunities to converse with the target person such as a coworker or use social media to watch videos with various accents.

4. 2. 2 Ideal Accent to Be Comprehended

When the participants in Phase 1 were asked what the ideal English accent for their own production is, 50% of the participants answered they do not have a specific ideal accent, and the way they currently speak was fine with them. Acquiring native accents was not considered an indispensable goal to attain. On the other hand, 40 % of the participants answered that they would like to speak English with an American accent, and 10% of the participants answered that a British accent was ideal. At the same time, 75% of the participants answered that they were willing to improve their pronunciation.

Similarly, most people with high English proficiency in Phase 2 answered that it is not necessary to have a native accent because "people even with an accent could be a fluent speaker" (Alex, November 15, 2019); in addition, accent could build one's characteristics, identity, and connections between people and a particular place, and even "make language more interesting and colorful (Harisha, November 15, 2019). However, it is also important to improve pronunciation to reach the level that people can comprehend your speech; moreover, Harisha (November 15, 2019) mentioned that speaking exactly like native speakers is not important but "it is important to know how the native speak."

On the other hand, three participants in Phase 2 mentioned negative factors of accents. For example, Alex (November 15, 2019) said that "accents do discredit what is said for most people as they seem less knowledgeable."

5. Discussion

5. 1 Various Accents and Listening Comprehension

This study was focused on how accent affects listening comprehension when the audio is controlled carefully, and how people perceive the way others speak. The results in Phase 1 showed that accent could significantly affect listening comprehension indicating the familiarity may have an effect in some cases. Such findings align with Munro *et al.* (2006) and Major *et al.* (2002). However, familiarity does not always facilitate listening comprehension with familiar accents. This is because even though only 65% of the Phase 1 participants had been exposed to Australian English, as opposed to the 100% exposure to US and UK English, the passage given in the Australian accent resulted in the highest scores among the four variants. These results suggest that accent characteristics, rather than just familiarity, could also affect listening comprehension; for example, the Australian accent could be phonologically easier to understand for Japanese than other accents.

In addition, even though the speech speed was precisely controlled, the results indicated that the participants perceived the Indian accent as the most difficult, unclear, and fastest. This finding could suggest that when people do not comprehend, the perception of speech speed becomes faster; moreover, it may be that, requiring longer processing time for incomprehensible accent, participants decreased comprehension by missing some spoken information as Munro (1998) indicated.

Accent identification seemed to be judged based on familiarity; for example, participants identified the U.S. accent at the highest rate; at the same time, however, it could be said that phonological characteristics could also affect identifiability. For example, the Indian accent is the most unique among the four accents. Therefore, the Australian accent was identified at the lowest rate by being misunderstood as the U.S. accent or the U.K. accent even though familiarity for the participants is higher for Australian accents than Indian accents.

5. 2 English Recognition

It is important to improve pronunciation to gain communicative competence, but it does not mean that people should follow one way to speak. To keep diversity in terms of English and respect different varieties of English, people need to expand their capacity for listening comprehension. In addition, it seems that there is no one best timing of introducing various accented audio material to EFL learners. However, decreasing the processing time for vocabulary, or grammar, people could spend more time processing unfamiliar accents as well as native speakers. Therefore, it is also important to strengthen the foundation of English knowledge. Also, negative impressions about accents could occur from the requirements of better concentration to process the unfamiliar accents. As an English speaker, one should focus on whom one would like to, or one needs to, talk to first, and pay attention to improve the capacity of listening comprehension.

6. Conclusion

This study showed that accents could affect listening comprehension in some cases, but the impact was small; moreover, not only familiarity with an accent but also the similarity with the familiar accent characteristics and phonological accent characteristics could possibly facilitate listening comprehension. In addition, it was indicated that unfamiliar accents may take a longer time to process, and that this may lead to them being perceived as faster than familiar accents. Also, it was suggested that capacity to comprehend unfamiliar accents could

be expanded by asking immediately what speakers said, connecting previous knowledge and perception, and by increasing exposure to the target accent. These results are likely to be of interest to English teachers and people using English internationally.

In short, people should adjust their accent to be comprehended and simultaneously try to expand their capacity for listening comprehension to respect the diversity of language as a human heritage. In addition, English is now spoken by a larger number of non-native than native English speakers. Thus, it is equally important for English learners to become familiar with non-native accents/Englishes as with native varieties.

Limitations

The number of participants for listening comprehension (Phase 1) was small; therefore, the effect of accent on listening comprehension could differ when a larger number of participants are involved. Moreover, the audio setting was made using Google Cloud Text-to-Speech, and this program was mainly designed to be used for announcements such as instructions for applications or websites. Therefore, the strength of accent could be limited; in other words, actual accented speech that people are exposed to in the real world may have more variety and could be stronger. In addition, thoughts of accents in Phase 2 were answered by volunteers interested in foreign language learning; therefore, the results could be biased, and it will be necessary to research with various participants to know real reactions to accents in the world.

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要　旨

本研究はアクセントへの親密度が聴解度や発話速度の知覚に与える影響、及び世界共通語としての英語の発音についての認識を調査することを目的とし、2つのパートに分けて実施された。

まず第1部において、中級程度の英語力を持つ20名の被験者が、Google Cloud Text-to-Speech（合成音声）の4つの音声設定（アメリカ英語、イギリス英語、インド英語、オーストラリア英語）を用いて録音されたTOEIC公式問題の4つの文章を聴き、聴解度に関する問題、書き取り問題、英語のアクセントに関するアンケートなどに回答した。アクセントは聴解度に影響を与えることが示されたが、それぞれのアクセントにおいてその影響は小さく、インド英語とオーストラリア英語にのみ有意差が示された。オーストラリア英語に対する親密度はインド英語の次に低かったが、聴解度が最も高かったことから、アクセントの親密度だけではなくそのアクセントが持つ特徴及び親密度の高いアクセントに対する類似性も聴解度に影響を与えると推測された。また、それぞれのアクセントの発話速度及びポーズ長を一致させたにも拘らず、インド英語が最も速い発話として知覚された。故に、アクセントに対する親密度または理解度が下がる際、より長い処理時間を必要とするため、発声速度がより速く知覚されていると推測された。

第2部においては、ネイティブスピーカー及び同程度の英語力を持つ11名の被験者が、英語の様々なアクセントに触れた経験についてオンライン上のインタビューに参加した。調査の結果、世界共通語としての英語の役割とは、意思疎通が可能であることが重要であり、発音の向上だけではなく聴解の幅を広げることが重要であると示された。

以上の考察より、聴き手の能力を上げることで、言語の多様性を尊重することに繋がると考えられると同時に、様々な発音に能動的に触れていくことが重要であると結論付けられた。

Appendix A

Passage 1

1. Listening Comprehension Questions

Q1. Who is Edgar Rollins?

(A) An actor
(B) A journalist
(C) A director
(D) A photographer

Q2. Why is Edgar Rollins' new project receiving a lot of attention?

(A) It is based on events from his life.
(B) It is different from his other work
(C) It is the winner of many awards
(D) It is difficult to understand

Q3. What will the listeners be able to do after the interview?

(A) Ask questions
(B) Take photographs
(C) Attend a film screening
(D) Get an autograph

Q4. もう一度流れてくる音声を聴き、書き出してください。(Please listen again and write down what you heard.)

2. Please answer about the speaker (Please circle)

	1	2	3	4	5
Understandability	Very difficult	Difficult	OK	Easy	Very easy
Speech Speed	Very fast	Fast	OK	Slow	Very slow
Voice clearness	Unclear	Not clear	OK	clear	Very clear
Accent strength	Very strong accent	Little accent	Not sure	A little accent	No accent
Intonation	Monotone	Almost Monotone	Not sure	Strong	Very Strong

3. Is this passage spoken in American, British, Australian, or Indian English? (Please circle)

American / British / Australian / Indian / Not sure

Appendix B

Questionnaires for Part 1
Age (　　)
Department (International English / Other:_____)

1. Please answer about your English learning.

Q1. Have you ever listened to these types of accented English?
American English / British English / Australian English / Indian English

Q2. Where are your English teachers from?
□ the U.S. □ the U.K. □ Ireland
□ Canada □ Australia □ New Zealand
□ Singapore □ India □ Philippine
□ Other:_____

Q3. Do you have an ideal accent to produce?
No (the way I speak is enough) / Yes:_____

Q4. Please circle one for each question. (1: Strongly Disagree ～ 5: strongly Agree)

	1	2	3	4	5
1. There are some situations when I find it difficult to comprehend the accent of an English speaker.					
2. It is important to be able to comprehend various English accents.					
3. It is important to listen to various accents repeatedly to be able to comprehend					
4. I feel that I want to improve my pronunciation.					

Q5. In the class of my school, I had the opportunity to practice listening to English with various accents.

	1	2	3	4	5
Elementary School	Never	Rarely	Sometimes	Often	Usually
Junior High School	Never	Rarely	Sometimes	Often	Usually
High School	Never	Rarely	Sometimes	Often	Usually
University	Never	Rarely	Sometimes	Often	Usually

Q6. In school classes, students should have opportunities to listen to English with various accents.

	1	2	3	4	5
Elementary School	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Junior High School	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
High School	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
University	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

Q7. What is your score or grade on the official English tests?

□ TOEIC ( )
□ TOEFL ITP ( )
□ TOEFL iBT ( )
□ IELTS ( )
□ Eiken (Grade)